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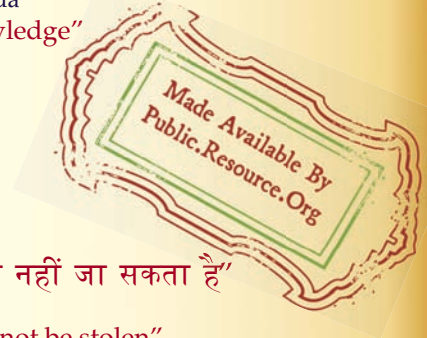
IS 10694-6 (2009): Automotive Vehicles - Rims - General Requirements [TED 7: Automotive Tyres, Tubes and Rims]



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भारतीय मानक
स्वचल वाहन — रिम — सामान्य अपेक्षाएँ
भाग 6 कृषि ट्रैक्टर, टिलर्स और साधनों के लिए रिम
(दूसरा पुनरीक्षण)

Indian Standard
AUTOMOTIVE VEHICLES — RIMS —
GENERAL REQUIREMENTS
PART 6 RIMS FOR AGRICULTURAL TRACTORS, TILLERS AND IMPLEMENTS
(*Second Revision*)

ICS 43.040.50; 65.060.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard (Part 6) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Automotive Tyres, Tubes and Rims Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was first published in 1984 and revised in 1988. The second revision is being based on the experience gained after publication of standard and availability of new designs. This standard has been revised to keep pace with the latest technological advancement in the field of wheels/rims for all types of vehicles.

This standard aims at uniform rims profiles that will match the tyres in obtaining proper fitment. The sizes, designations and markings have also been standardized to facilitate uniform adoption during manufacture.

This standard is one of the parts pertaining to rims for various types of automotive vehicles. The other parts in this series are:

- (Part 1) : 2009 Nomenclature, designation, marking and measurement (*second revision*)
- (Part 2) : 2009 Passenger car (*second revision*)
- (Part 3) : 2009 Commercial vehicles rims (*second revision*)
- (Part 4) : 2009 Scooter and scooter derivative rims (*first revision*)
- (Part 5) : 2009 Moped, motorcycle and motorcycle derivative rims (*second revision*)
- (Part 7) : 2009 Industrial truck rims (*first revision*)
- (Part 8) : 2009 Earthmoving machine rims (*first revision*)

These parts do not lay down methods of testing and performance requirements for wheels/rims pertaining to the respective tyres of automotive vehicles but lay down only the profiles and other general requirements.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

AUTOMOTIVE VEHICLES — RIMS — GENERAL REQUIREMENTS

PART 6 RIMS FOR AGRICULTURAL TRACTORS, TILLERS AND IMPLEMENTS

(*Second Revision*)

1 SCOPE

This standard (Part 6) covers the rim contours and general requirements for agricultural tractor, tillers and implements.

2 REFERENCE

IS 10694 (Part 1) : 2009 'Automotive vehicles — Rims — General requirements: Part 1 Nomenclature, designation, marking and measurement (*second revision*)' is a necessary adjunct to this standard.

3 DIMENSIONS

Rim contours for agricultural tractors, tillers and implements with dimensions shall be as given in Fig. 1 to Fig. 4.

3.1 For valve-hole apertures, see 2.3.4 of IS 10694 (Part 1).

3.2 For details of diameters, circumference and mandrel dimensions, see Tables 1 and 2 and 5.3 of IS 10694 (Part 1).

4 DESIGNATION

The size designation of wheel/rim shall include figures and alphabets in the following order, representing:

a) Nominal rim width code,

b) Rim flange profile, and

c) Nominal rim diameter code.

4.1 An alphabet signifies the tyre side profile of the rim flange. Usually, the profile designation follows the nominal rim width code. It may, however, precede or include the nominal rim width.

Examples:

W 11 × 28

W 15 L × 28

5.00 F × 20

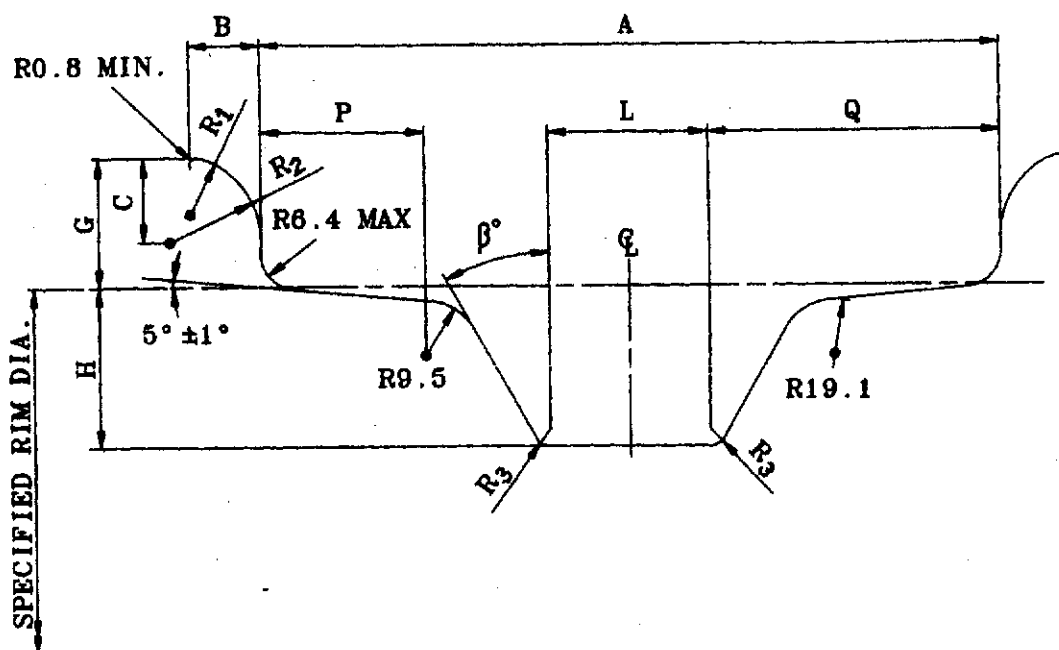
5 GENERAL REQUIREMENTS

5.1 The rim shall have a smooth contour, free from sharp edges on the tyre side.

5.2 Valve hole shall generally be perpendicular to well base in case of well base rim.

5.3 Valve-hole edges on rim shall be free from burrs.

5.4 Starting with the highest point of the flange of well base or drop centre rims, the shaping of the flange contour towards the outer part of the rim is left to the manufacturer, but any increase in width of the rim flanges above the minimum width shall be located lower than the highest point of the flange in order to facilitate tyre mounting.

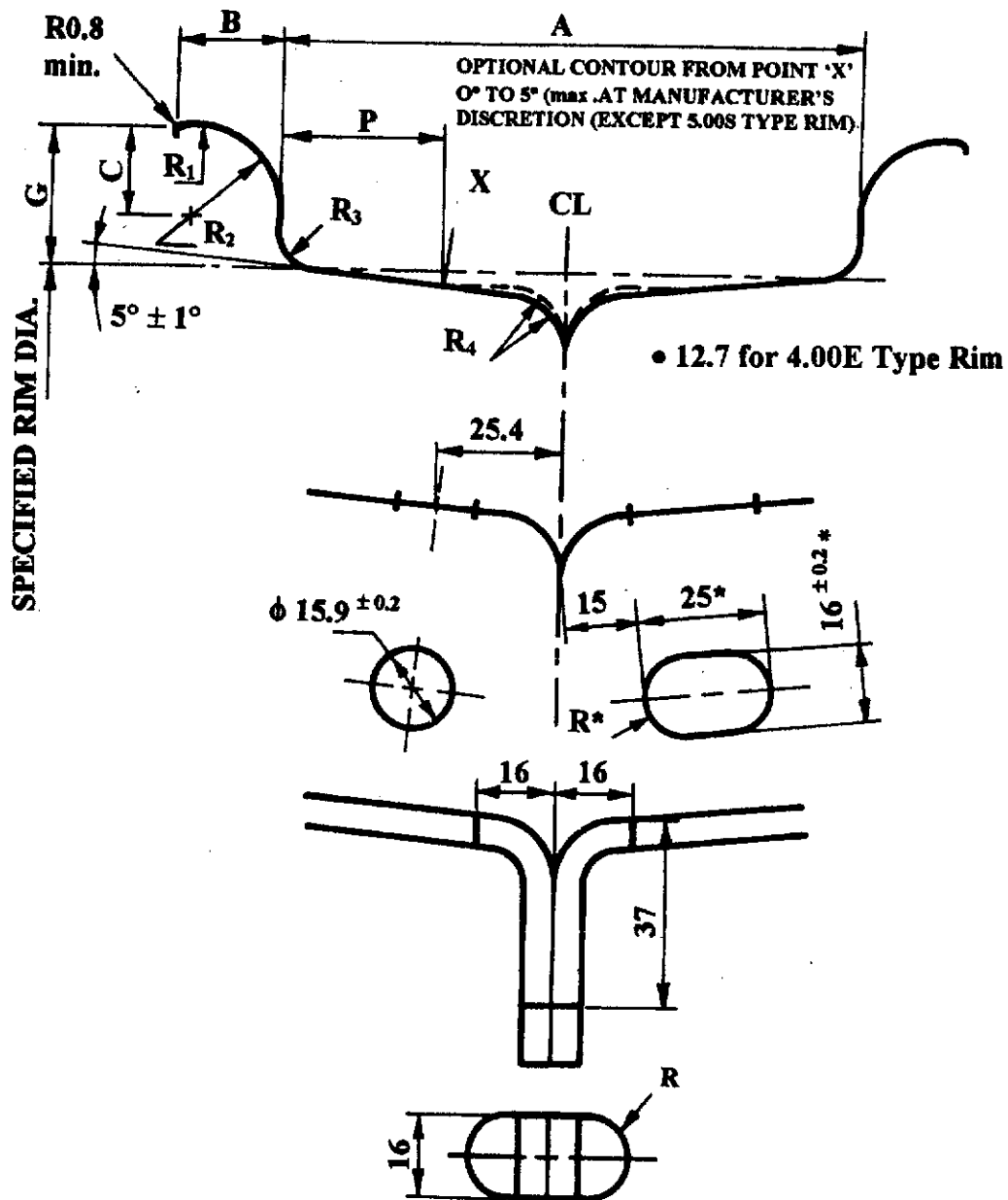


Contour Dimensions

All dimensions in millimetres.

Width Code	A		B Min	P Min	Q Max	C	L Min	G		H Min	R ₁	R ₂	R ₃	β° Min
	Dimension	Tolerance						Dimension	Tolerance					
4.00E	101.6	±1.6	11.7	18.0	—	13.6	30.4	19.8	+1.2	19.0	8.6	14.2	4.7	10°
4.50E	114.3				23.1		—			23.4				
5.00F	127.0				23.9		—			27.6				
5.50F	139.7		12.2	23.9	36.5	14.5	—	22.2	-0.4	27.6	9.7	15.6	6.4	15°
5K	127.0		10.3	19.8	35.3	10.3	26.2	19.6		25.4				

FIG. 1 15° DROP-CENTRE RIMS FOR LIGHT TRUCK, TRAILER,
AGRICULTURAL TRACTORS AND IMPLEMENTS



Contour Dimensions

All dimensions in millimetres.

Width Code	A		B	C	G		P ¹⁾	R ₁	R ₂	R ₃	R ₄
	Dimension	Tolerance	Min		Dimension	Tolerance				Max	Max
4.00E	101.6	± 1.6	11.7	13.6	19.8	+1.2 -0.4	—	8.6	14.2	4.3	12.7
5.00S	127.0		22.5	—	31.3 ²⁾		—	—	18.3	8.0	16.0
5.50F	139.7		11.2	14.5	22.2		23.9 ²⁾	9.5	15.6	6.4	11.0

¹⁾ A higher minimum under consideration and would be acceptable only if a type of 12 p.r. or higher is added to the range in that case a circular rim hole, instead of the elongated slot, as shown, may be necessary.

²⁾ 34 mm minimum for 5.50 F \times 10 Rim.

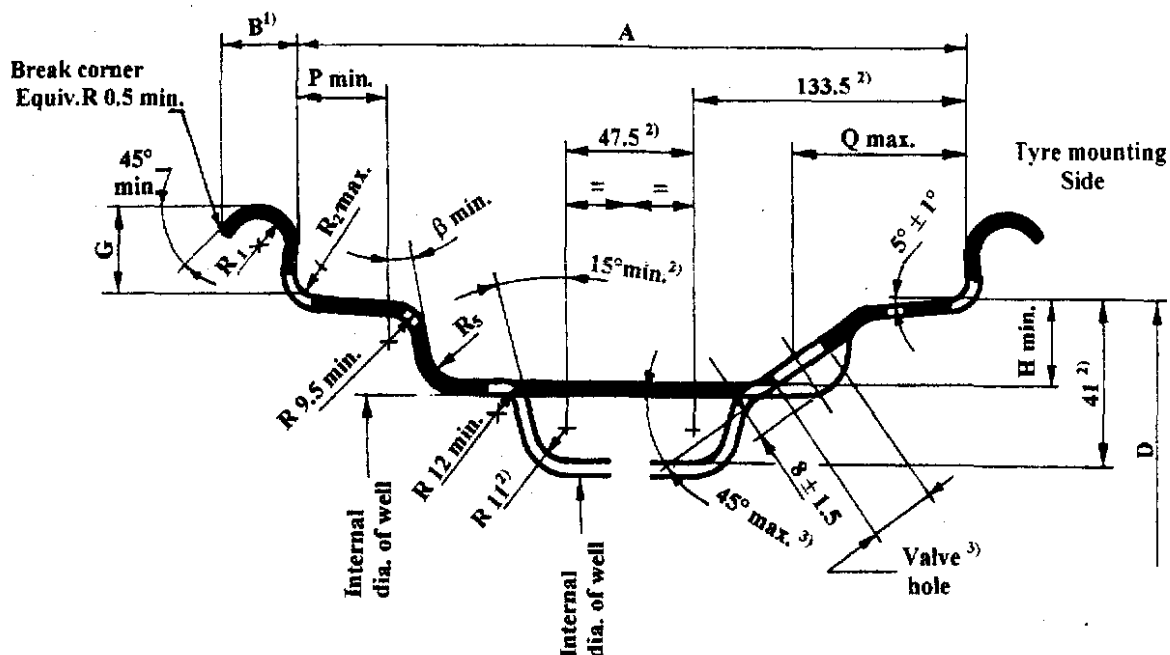
³⁾ Tolerance ± 1.2 .

FIG. 2 DIVIDED TYPE RIM PROFILE DIAMETER CODE 9-16

Table 1 Diameters and Circumferences
(Clause 3.2)

Sl No.	Nominal Rim Diameter Code	Specified Rim Diameter	Taping Diameter	Taping Circumference $e \pm 1.2$	Taping Position	Tape Mandrel Diameter ¹⁾	Tape Mandrel Circumference ¹⁾	Diameter of Ball Tape for Rim Measurement
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	9	227.8	227.0	713.1	4.6	227.4	714.2	10.0
ii)	10	253.2	251.9	791.4	7.3	252.3	792.5	16.0
iii)	12	308.8	307.5	966.1	7.3	307.8	967.0	16.0
iv)	16	405.6	404.3	1270.3	7.3	404.7	1271.2	16.0

¹⁾Mandrel dimensions shown above include plus tolerance of 1.2 mm on circumference and 0.4 mm on diameter.



Contour Dimensions — W and DW Rims

Rim Contour	Dimensions, mm											
	A		G ±1	B		P Min	H Min	Q Max	R ₁	R ₂ Max	R ₃ Max	β Min
				Min	Max							
W6	152.5	±2.5	22.5	10	14.5	23.5	20.5	44.5	9.5	6.5	11	6°
W7	178	±2.5	22.5	10	14.5	23.5	20.5	44.5	9.5	6.5	11	6°
W8	203	±2.5	22.5	10	14.5	23.5	20.5	44.5	9.5	6.5	11	6°
W9	228.5	±2.5	25.5	11.5	18 ¹⁾	27	20.5	51	11	6.5	11	6°
W10	254	±2.5	25.5	11.5	18 ¹⁾	27	20.5	51	11	6.5	11	15°
W11	279.5	±2.5	25.5	11.5	18 ¹⁾	27	20.5	57.5	11	6.5	11	15°
W12	305	±2.5	25.5	11.5	18 ¹⁾	27	20.5	57.5	11	6.5	11	15°
W13	330	±2.5	25.5	11.5	18 ¹⁾	27	20.5	57.5	11	6.5	11	15°
W8L	203	±2.5	22.5	11.5	18 ¹⁾	27	20.5	51	11	6.5	11	15°
W10L	254	±2.5	22.5	11.5	18 ¹⁾	27	20.5	57.5	11	6.5	11	15°
W14L	355.5	±5	25.5	11.5	18 ¹⁾	27	20.5	57.5	11	6.5	11	15°
W15L	381	±5	25.5	11.5	18 ¹⁾	33	20.5	57.5	11	6.5	11	15°
W16L	406.5	±5	25.5	11.5	18 ¹⁾	33	20.5	57.5	11	6.5	11	15°
W18L	457	±5	25.5	11.5	18 ¹⁾	33	20.5	57.5	11	6.5	11	15°
DW10	254	±2.5	25.5	11.5	18 ¹⁾	27	20.5	54	11	6.5	14.5	15°

FIG. 3 AGRICULTURAL TRACTORS AND IMPLEMENTS W AND DW RIM BASE CONTOURS — Continued

Rim Contour	Dimensions, mm											
	A		G ±1	B		P Min	H Min	Q Max	R ₁	R ₂ Max	R ₃ Max	β Min
				Min	Max							
DW11	279.5	±2.5	25.5	11.5	18 ¹⁾	27	20.5	54	11	6.5	14.5	15°
DW12	305	±2.5	25.5	11.5	18 ¹⁾	27	20.5	54	11	6.5	14.5	15°
DW13	330	±2.5	25.5	11.5	18 ¹⁾	27	20.5	54	11	6.5	14.5	15°
DW14L	355.5	±5	25.5	11.5	18 ¹⁾	36.5	27	63.5	11	8	14.5	15°
DW15L	381	±5	25.5	16	- 2)	36.5	27	63.5	11	8	14.5	15°
DW16L	406.5	±5	25.5	16	- 2)	50.5	27	95.5	11	8	14.5	15°
DW18L	457	±5	25.5	16	- 2)	50.5	27	95.5	11	8	14.5	15°
DW20B ³⁾	508	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°
DW21B ³⁾	533.5	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°
DW23B ³⁾	584	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°
DW24B ³⁾	609.5	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°
DW25B ³⁾	635	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°
DW27B ³⁾	686	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°
DW28B ³⁾	711	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°
DW30B ³⁾	762	±6.5	29	21	- 2)	50.5	27	95.5	15	8	14.5	15°

NOTES

1 The outer rim flange contour from the highest point of the rim flange is left to the manufacturer within the following restrictions. The contour can either follow a continuation of R_1 to full flange width or, if conical shaped, a minimum 45° angle applies between the upper G horizontal reference line.

2 These dimensions comprise the minimum well envelope for tyre-mounting purposes.

3 Valve holes 15.7 C2 or 15.7 G3 may be on either side of the rim.

¹⁾ Rim flanges width within 5 mm on each side.

²⁾ Rim flanges width within 6 mm on each side.

³⁾ DW-B rim contour has been named DW-A in year 2004, 2005 and 2006. W-B rims replace DW-A rims and can be used with full interchangeability.

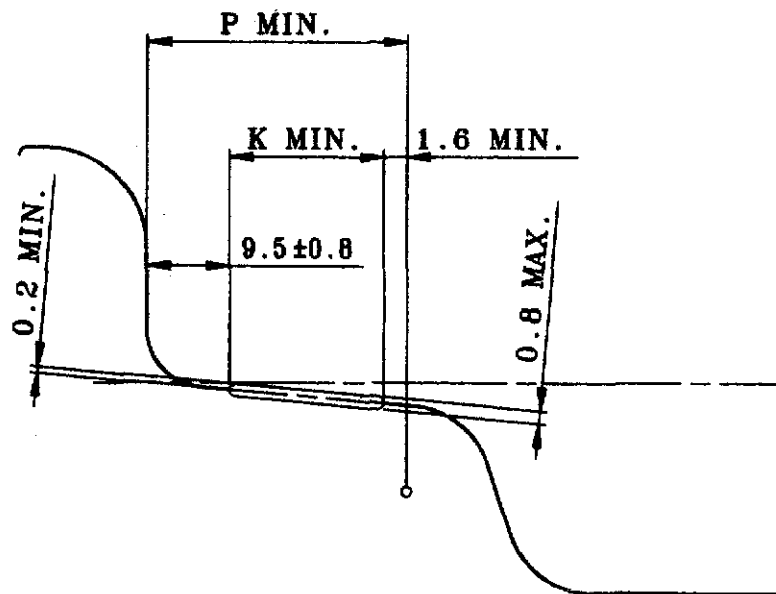
FIG. 3 AGRICULTURAL TRACTORS AND IMPLEMENTS W AND DW RIM BASE CONTOURS

Table 2 Diameters — W and DW Rims
(Clause 3.2)

Sl No.	Nominal Diameter Code	Type	Dimensions	
			Specified Diameter, <i>D</i> mm	Internal Diameter of Well mm
(1)	(2)	(3)	(4)	(5)
i)	16	W	405.6	352.2
ii)	18	W	462.0	408.5
iii)	20	W	512.8	459.3
iv)	24	DW	614.4	510.1
v)	24	W	614.4	560.9
vi)	26	DW	665.2	560.9
vii)	26	W	665.2	611.7
viii)	28	DW	716.0	611.7
ix)	28	W	716.0	662.5
x)	30	DW	766.8	662.5
xi)	30	W	766.8	713.3
xii)	32	DW	817.6	713.3
xiii)	32	W	817.6	764.1
xiv)	34	DW	868.4	764.1
xv)	34	W	868.4	814.9
xvi)	36	DW	919.2	814.9
xvii)	36	W	919.2	865.7
xviii)	38	DW	970.0	865.7
xix)	38	W	970.0	916.5
xx)	40	W	1 020.8	967.3
xxi)	42	DW	1 071.6	967.3
xxii)	42	W	1 071.6	1 018.1
xxiii)	44	W	1 122.4	1 068.9
xxiv)	46	W	1 173.2	1 119.7
xxv)	48	W	1 224.0	1 170.5
xxvi)	50	W	1 274.8	1 221.3
xxvii)	52	W	1 325.6	1 272.1
xxviii)	54	W	1 376.4	1 322.9

NOTE — Tolerance for internal diameter of wheel:

From W 16 to DW 26	:	±1 mm
From W 26 to DW 36	:	±1.5 mm
From W 36 to W 44	:	±2 mm
From W 46 to W 54	:	±3 mm

KNURLING SPECIFICATION FOR TRACTOR RIM**PITCH 1.6 TO 3.2 mm.**

Rim Width	Rim Diameter Code Below 24	Rim Diameter Code 24 and Above
Up to width Code 13	Optional	Optional
Width Code 14 and above	Optional	Mandatory

KNURLING DETAILS	
P_{Min}	K_{Min}
< 33	10.2
33 up to 41.3	20.6
> 41.3	25.4

FIG. 4 KNURLING DETAILS

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This Indian Standard has been developed from Doc No. : TED 7 (553).

Amendments Issued Since Publication

Amendment No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.org.in

Regional Offices:

	Telephones
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern : 1/14, C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 260 3843 260 9285
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